British Journal of Venereal Diseases, 1977, **53**, 204–210

Abstracts

These selected abstracts and titles from the world literature are arranged in the following sections:

Syphilis and other treponematoses (Clinical and therapy)

Hepatitis and bone destruction as uncommon manifestations of early syphilis

P. LONGSTRETH, A. W. HOKE, AND C. MCELROY (1976). *Archives of Dermatology*, **112**, 1451

A 30-year-old man presented with patchy loss of hair and pain in his shoulder. He gave a history of a sore throat and adenitis six months previously and mild headaches for several months. Examination showed a perianal erosion in which *Treponema pallidum* were demonstrated, and ulceration of the tonsil with local adenitis. The liver was palpable but not tender and there was tenderness over the right acromio-clavicular joint. The FTA-ABS test was positive and the VDRL test reactive at 1 in 64. Three weeks previously the latter test had been reported as negative, presumably because of a prozone phenomenon. *X*-ray examination showed irregular resorption of the distal portion of the clavicle. A liver biopsy showed acute necrosis round the central veins, the portal areas and midzones of the lobules with granulomatous infiltration. The levels of alkaline phosphatase and SGOT were raised.

He was treated with four injections of 2·4 megaunits of benzathine penicillin at weekly intervals; the first injection was followed by a Herxheimer reaction. After a month there was early recalcification of the clavicle with restoration of movement and the liver function tests were normal.

The literature on bone changes and liver involvement in early syphilis is reviewed.

A. E. Wilkinson

[Reprinted from *Abstracts on Hygiene*, by permission of the Editor]

The role of surgery in primary syphilis of the anus

L. M. DRUSIN, W. P. HOMAN, AND P. DINEEN (1976). *Annals of Surgery*, **184**, 65

Syphilis (Serology and biological false positive phenomenon)

Study of the dynamics of levels of immunoglobulins of IgG, IgA, and IgM classes in experimental syphilis in rabbits

G. R. IRMATOVA AND A. H. ABDULLAEV (1976). *Dermatology and Venereology News*, **0–6**, 32 (from USSR)

The level of immunoglobulins in experimental syphilis in rabbits was studied using sheep monospecific sera to individual classes of immunoglobulins. In syphilis-infected rabbits the levels of IgG and IgA were increased (to 182·2 and 204% respectively) in comparison with a mean level of these immunoglobulins in normal rabbits, but the level of IgM underwent no significant changes. After two courses of specific treatment the levels of IgG and IgA declined to normal.

D. J. M. Wright

Complement fixing antibrain antibody

L. J. SAZONOVA AND V. M. YAVKIN (1976). *Dermatology and Venereology News*, **0–6**, 26 (from USSR)

Whole brain and meningeal antigens were prepared from a patient with general paralysis. The brain tissues were homogenised, soaked in 90% alcohol and then in normal saline for 10 days. The antigen was then clarified by centrifugation at 2000 rev/min, precipitated in 20% sulphosalicyclic and the deposit used at a dilution of 1/10 for the meningeal preparation and 1/50 for the brain substance in the complement-fixation test.

Sera from 47 congenital syphilitic patients with mental deficiency were tested using the meningeal and brain antigen. Positive reactions were found in 14 and 15 sera respectively. In none of these sera was the TPI or cardiolipin test positive. A further 39 sera from patients with neurosyphilis were tested with these organ antigens and positive reactions were found in 23 sera with the meningeal extract and 22 with the whole brain extract. There were 23 sera with positive reactions

with the TPI test and 14 with the cardiolipin tests. No positive results were found in 20 sera from patients with mental deficiency, six sera from patients with schizophrenia, or three from normal patients. Toxoplasma antigen complement-fixation tests and saline controls were essentially negative.

[A distinction between the brain autoantibodies and cardiolipin tests was not clear, but these antigens seem to detect a different antibody in view of the lack of correspondence in the mentally defective congenital syphilitic patients.]

D. J. M. Wright

Syphilis (Pathology and experimental)

Treponema pallidum infection in subcutaneous polyethylene chambers in rabbits

R. T. TIGHT AND R. I. PERKINS (1976). *Infection and Immunity*, **13**, 1606

The authors implanted two subcutaneous 'golf ball' chambers in New Zealand white rabbits. After a three-month interval, the chambers became filled with an amber fluid consistent with a mononuclear exudate. The rabbits were divided into three groups: Group 1 (control) had chambers inoculated with 1 ml of chamber fluid; Group 2 had bilateral intratesticular inoculations with a suspension of $5{\cdot}30 \times 10^6$ Nichols strain *Treponema pallidum* in chamber fluid; Group 3 had 1 ml of a similar suspension inoculated into each chamber after the removal of 1 ml of fluid and its replacement by 1 ml of air. Each group was divided into four subgroups: (a) No drug treatment (b) dexamethasone 1·0 mg/kg daily intramuscularly (c) oxisuran 50 mg/kg daily intramuscularly (oxisuran is a differential inhibitor of cell-mediated immunity) (d) both dexamethasone and oxisuran.

Specimens were obtained before and after inoculation at intervals for direct counts of *T. pallidum* in chamber fluid by darkground microscopy, serum and chamber serological tests, chamber fluid leucocyte and differential counts, and chamber fluid total protein determinations. Orchitis in Group 2 rabbits was determined by palpation and occurred in each rabbit 7–11 days after inoculation.

No treponemes were seen in the chamber fluid in Groups 1 and 2. In Group 3, (b) and (d) showed an increase in the count reaching a maximum after a period of 13–25 days in (b) and 13–23 days in (d). Group 3 (c) showed no differences from (a). At the time when the counts were maximal, subcutaneous proliferations developed around the chambers and the chamber fluid was more mucoid.

Serological testing using a passive haemagglutination technique showed that Group 3 rabbits converted later than Group 2, whereas no Group 1 rabbits converted. Chamber fluid reactivity occurred sooner in Group 3 than in Group 2.

Post-inoculation leucocyte counts in Groups 1 and 2 showed little change from pre-inoculation but in Group 3 there was an influx of polymorphonuclear leucocytes within 24 hours of inoculation; this was transient and within 11 days the cells returned to mononuclear, although the levels were raised 1·7 to 2·0 times the pre-inoculation level.

Chamber fluid total protein declined slightly in all groups and subgroups during the 30 days after inoculation: this probably represents the decrease that occurs with time after chamber implantation.

The authors considered three possibilities for the decline in *T. pallidum* counts in the first five days: 1. Simple dilution (which cannot be the entire reason as the fall is greater than the dilution factor); 2. Polymorphonuclear leucocyte phagocytosis, or phagocytosis by mononuclear cells; 3. Dissemination from the chamber: this probably occurs as every rabbit converts its serology. Chambers implanted for less than three months allow dissemination more readily than those around which a thick fibrous capsule has formed.

The authors discuss the possibility that the cause of the second decline in numbers of organisms may be delayed hypersensitivity, exhaustion of nutrients, or accumulation of toxic waste products. They suggest further uses for the technique—for example, provision of treponemes free of debris, and studying the actions of antibiotics on the organism.

G. D. Morrison

Treponemal antigen in immunopathogenesis of syphilitic glomerulonephritis

D. R. TOURVILLE, L. G. BYRD, D. U. KIM, D. ZAJD, I. LEE, L. B. REICHMAN, AND S. BASKIN (1976). *American Journal of Pathology*, **82**, 479

A patient with syphilitic glomerulonephritis had a renal biopsy and was treated for secondary syphilis. Light, electron, and immunofluorescence microscopical studies revealed an acute proliferative glomerulonephritis with subepithelial intramembranous and subendothelial immune complex deposits containing IgG, IgA, IgM, C_4, and C_3. Similar local deposits containing predominantly IgM were noted in areas of mesangial proliferation. Indirect fluorescent antibody studies employing rabbit treponemal antibody and sheep anti-rabbit globulin conjugate revealed the presence of treponemal antigen in the glomerular deposits. No tests with sheep antisera as controls were carried out. Interestingly, elution studies were done without pre-incubation.

The electron microscopical findings of the glomerulus in acquired syphilitic glomerulonephritis is reviewed.

D. J. M. Wright

Treponemal antigens in congenital and acquired syphilitic nephritis

S. O'REGAN, J. S. C. FONG, J. P. DE CHADAREVIAN, J. R. RISHIKOF, AND K. N. DRUMMOND (1976). *Annals of Internal Medicine*, **85**, 325

Two patients, a four-month-old girl with congenital syphilis and a 45-year-old man with secondary syphilis, had a nephrotic syndrome with glomerulonephritis. Light microscopy showed glomerular hypercellularity, sclerosis, and diffuse thickening of the basement membrane. Inflammatory changes in the interstitium were also seen. Granular deposits of IgG, C_3 (and in one case C_4) were demonstrated along the capillary loops of the glomeruli by indirect immunofluorescence. Some mesangial localisation of IgG and C_3 was also found by immunofluorescence which correlated with the finding of deposits in the mesangium on electron microscopy, thus indicating an extramembranous glomerulonephritis. Treponemal antigens in the glomeruli were seen by using an immunofluorescence sandwich technique with high titre pooled treponemal antisera raised in rabbits. Absorption of the treponemal antisera with *T. pallidum* reduced staining in the section from the infant and abolished the staining from the adult. Two sections from non-syphilitic patients in whom similar glomerular IgG deposits were present did not stain with the pooled sera. Two labelled anti-treponemal sera failed to detect antigen in these sections or in sections on which antibody had been eluted.

No studies of the eluate were made. The pooled antisera were not tested on the sections from which antibody had been eluted. No normal anti-rabbit sera were used as controls in these studies, nor are there data of tests done to show how effective absorption was in removing antibody from pooled anti-rabbit sera. The authors suggest that antibodies to more antigenic determinants were present in pooled sera than in the single serum, but without the controls or data mentioned non-specific staining cannot entirely be ruled out. The congenital syphilitic patient responded to treatment; however, there are no details given on follow-up on the adult patient or on follow-up biopsies.

D. J. M. Wright

Survie et réponse humorale de souris infectées par *Treponema pallidum* (Survival and humoral response of mice infected with *Treponema pallidum*)

D. SALUSSOLA, J. FABRY, J. C. MONIER, AND M. SEPETJIAN (1976). *Pathologie Biologie.* **24,** 245

To test the pathogenicity of *Treponema pallidum* in mice, we inoculated two groups of animals: 1. One with a normal immune system, adult Swiss mice; 2. The other with an immune system presenting a defect in T cells, athymic Nude mice. No lesions appeared at the points of inoculation and the survival of these animals was not modified compared with control animals.

We also carried out a study of antitreponemal antibodies in adult and newborn Swiss mice using, for the adults, various concentrations of *T. pallidum* and different routes of inoculation. In adult mice, the search for antibodies by fluorescence showed that the intradermal route permits a more rapid humoral response than the intraperitoneal route, with higher antibody titres. Furthermore, an inoculum of $8{\cdot}6 \times 10^6$ per mouse gives quicker results and higher titres than those obtained with an inoculum of half this amount. The time at which the Nelson test becomes positive is independent of the route of inoculation but related to the injected dose. On the other hand, the Kline reaction remained negative for all groups of mice throughout the whole period of our study. In newborn mice, only 76% became positive on fluorescence and the Nelson test.

Authors' summary

Gonorrhoea (Clinical)

A case of gonococcal osteomyelitis: A complication of gonococcal arthritis

C. D. ANGEVINE, C. B. HALL, AND R. F. JACOX (1976). *American Journal of Diseases of Children,* **130,** 1013

An eight-week pregnant girl of 16 was admitted to hospital with arthritis of her right second metacarpo-phalangeal (MCP) joint. She also had a migratory polyarthritis of the right elbow and both knees. Haematological studies were normal, apart from a polymorphonuclear leucocytosis and a sedimentation rate of 37 mm per hour. A cervical culture grew no gonococci. *X*-rays showed soft tissue swelling of the right second and third MCP joints and bone destruction of the distal part of the second metacarpal bone. While in hospital she developed a haemorrhagic bullous rash with purulent centres over the right ankle, both knees, and elbows.

A week later *x*-rays showed progression of the destructive changes already noted. By this time an abscess had developed on the palmar aspect of the right second MCP joint. This was drained and a smear of the pus showed an occasional Gram-negative diplococcus, but the culture showed no growth. Cervical and blood cultures taken 12 hours after treatment with nafcillin were negative, but a serum immunofluorescent gonorrhoeal antibody test was strongly positive. A diagnosis of gonorrhoeal arthritis with secondary osteomyelitis was made and the patient put on a three-week course of intravenous penicillin—1·5 megaunits four hourly. There was a rapid response to treatment, there being no joint pain after 48 hours.

The authors suggest that osteomyelitis is more likely to develop the longer the interval between the onset of arthritis and the start of antibiotic treatment. Serial *x*-rays may help in the earlier detection of the condition.

C. S. Ratnatunga

Gonococcaemia in pregnancy

W. G. WATRING AND D. L. VAUGHAN (1976). *Obstetrics and Gynaecology,* **48,** 428

As gonorrhoea is asymptomatic in 30 to 75% of women, diagnosis is often delayed. This may result in the development of generalised infection, which should be recognised clinically before a laboratory diagnosis is made.

A 25-year-old woman, 34 weeks pregnant, complained of arthralgia, fever, and rash on the limbs. She had a purulent cervical discharge. Urethral and cervical smears and cultures from the skin lesions and patellar effusion were negative. Electrocardiograms were abnormal but not diagnostic of pericarditis or myocarditis. Skin biopsies showed perivasculitis. The symptoms improved rapidly with intravenous penicillin.

In pregnancy, gonococcaemia occurs in the late second or third trimester, and this diagnosis must be considered when septic arthritis and/or a maculopapular rash is present. As cultures from blood, joints, and skin lesions are positive in only 16 to 24% of cases, realistic criteria proposed for the diagnosis of systemic gonococcal disease are: 1. Positive local cultures and/or fluorescent antibody test; 2. Classical clinical manifestations; 3. Response to penicillin therapy. More universal testing of skin biopsy with fluorescent antibody is recommended.

N. A. Durham

Gonococcal salpingitis in pregnancy

R. R. GENADRY, B. H. THOMPSON, AND J. R. NIEBYL (1976). *American Journal of Obstetrics and Gynecology,* **126,** 512

This paper records a case of acute gonococcal salpingitis confirmed by cervical smear and culture in a 21-year-old primipara who was 14 weeks pregnant. An exploratory laparotomy was done because of a presumptive diagnosis of acute appendicitis. The appendix was normal but both tubes were inflamed and purulent material exuded from the fimbriated ends. A smear of this showed Gram-negative intracellular diplococci, confirmed on culture as *Neisseria gonorrhoeae.* After treatment with cephalothin, kanamycin, and progesterone the pregnancy continued uneventfully and the patient delivered a normal infant spontaneously at 37 weeks of gestation.

The authors mention the mechanisms involved to explain the rarity of acute gonococcal salpingitis in pregnancy. They point out that infection may take place at the same exposure as conception, thus explaining its occurrence in very early pregnancy. Furthermore, as obliteration of the endometrial cavity by the pregnancy is not complete until the end of the first trimester, gonococci may ascend directly via the endometrial cavity until then. Gonococci may also ascend by the

lymphatics into the parametra, or produce a bacteraemia, thus explaining the occurrence of acute salpingitis later in pregnancy.

C. S. Ratnatunga

Screening for gonococcal salpingitis (Letter)
J. G. FEENEY AND A. EL BADRI (1976). *Lancet*, **2**, 1309

Asymptomatic urethral gonorrhea among men in public New York City social hygiene clinics
D. D. DEXTER, V. G. CAVE, Y. C. FAUR, M. H. WEISBURD, AND M. E. WILSON (1976). *Journal of the American Venereal Disease Association*, **2**, 7

Gonorrhoea (Microbiology)

The Papanicolaou smear as a technique for gonorrhea detection: A feasibility study
G. M. ARSENAULT, C. F. KALMAN, AND K. W. SORENSEN (1976). *Journal of the American Venereal Disease Association*, **2**, 35

Papanicolaou smears obtained from 150 patients were studied to determine the screening accuracy of identifying diplococci during active gonococcal infection. Diplococci were cytologically identified in 62% of adequate smears obtained from culture-positive cases. No false-positives were reported. The yield of diplococci noted on the surface of metaplastic junctional cells was greater than that found within the cytoplasm of polymorphonuclear leucocytes. Adequacy of cytological smears in determining the presence of diplococci requires a complement of metaplastic cells. This technique deserves further evaluation as a screening test for gonorrhoea detection in asymptomatic women.

Authors' summary

Clinical correlation of strain differentiation of *Neisseria gonorrhoeae*
E. C. TRAMONT, J. MCL. GRIFFIS, D. ROSE, G. F. BROOKS, AND M. S. ARTENSTEIN (1976). *Journal of Infectious Diseases*, **134**, 128

The procedure described depends upon the bacteriocidal effect of rabbit-raised meningococcal antisera incubated against suspensions of the gonococci under test in the presence of guinea-pig complement. Activity was considered significant only if 50% of the incubated bacteria were killed after 30 minutes. The set of 20 antisera used comprised eight that were unabsorbed, and 12 absorbed with *N. meningitidis*. Strains were considered identical if 19 out of the 20 antisera gave the same results for both strains. The authors found that strains from 20 unrelated patients gave 20 different patterns of killing.

This system is presumably not interchangeable between laboratories in view of the unique specificities of the antisera, but it is clearly useful in discriminating strains at local level, subject to inevitable variation between batches of antisera which, of course, does not impair their use for comparative purposes in a given set of tests.

Brian Evans

The effect of vaginal lubricants on *Neisseria gonorrhoeae*
B. SINGH AND J. C. CUTLER (1976). *American Journal of Obstetrics and Gynecology*, **126**, 365

The *in vitro* inhibitory effects on the growth of *Neisseria gonorrhoeae* of two lubricants in common use in the USA (Lubrifoam, Holland-Rantos Co., and KY Jelly, Johnson & Johnson) were tested and compared using the following techniques.

1. (*Time-exposure method*). 1 ml aliquots of both lubricants, undiluted and at concentrations of 50%, 20%, and 10% were mixed with 0·1 ml of a culture containing *N. gonorrhoeae* 10^6–10^7 organisms per ml. Samples were taken from each dilution at 1, 5, and 10 minutes and these were inoculated on to chocolate agar and incubated in CO_2 at 37°C for 24 hours.

2. (*Plate dilution method*). 1 ml aliquots of both lubricants at dilutions 10%, 2%, and 1% were mixed with 9 ml of melted chocolate agar which was then settled on to Petri dishes. These were then inoculated with a culture of *N. gonorrhoeae* as in the previous technique. After incubation, the lowest concentration of test material which completely inhibited growth was designated the 'end-point'.

3. To 1% Lubrifoam and 90% KY Jelly, an aliquot of suspension of *N. gonorrhoeae* was added. At intervals of 1, 10, 20, 30, and 60 minutes samples were taken and inoculated on to chocolate agar for culture. The number of surviving bacteria was estimated by a 'spread-plate-count' technique.

Results. With the first technique, Lubrifoam was found to inhibit growth at all dilutions used, even when the 'exposure-time' was only one minute. KY Jelly showed no inhibitory effect, even after 10 minutes at a concentration of 90%. The second method showed that Lubrifoam caused total inhibition of growth when used in a concentration greater than 1%, but KY Jelly caused no inhibition unless used in concentrations of over 10%. The third technique showed that Lubrifoam had an immediate inhibitory effect as judged by the number of surviving bacteria; total suppression took place at about 25 minutes. KY Jelly showed a much smaller inhibitory effect which was maximal at 10 minutes and showed no significant increase thereafter.

The results indicate that Lubrifoam is not a suitable preparation to use when examining patients with sexually transmitted disease. KY Jelly, although preferable, also has an inhibitory effect on the growth of *Neisseria gonorrhoeae* and is probably best avoided.

J. D. H. Mahony

Physiology and metabolism of pathogenic Neisseria: tricarboxylic acid cycle activity in *N. gonorrhoeae*
B. H. HEVELER AND S. A. MORSE (1976). *Journal of Bacteriology*, **128**, 192

Gonorrhoea (Therapy)

Gonorrhea in pre-school and school-aged children
J. D. NELSON, E. MOHS, A. S. DAJANI, AND S. A. PLOTKIN (1976). *Journal of the American Medical Association*, **236**, 1359

A co-operative study was undertaken to determine the efficacy of single-dose oral or parenteral therapy in the management of gonorrhoea occurring in pre-pubertal children, and to investigate the frequency of pharyngeal and rectal infection in these children.

One hundered children, 15 boys and 85 girls, aged between 14 months and 14

years, were investigated; 43 attended at hospitals in Costa Rica and the others at various centres in the USA. Treatment was started on the basis of the result of examination of a Gram-stained urethral or vaginal film but in all cases specimens for culture were taken from the pharynx, urethra, anal canal and, in girls, the vagina before giving antibiotics.

These children suffered 108 episodes of gonorrhoea. Fifty-three were treated with penicillin G, 100 000 units per kg intramuscularly and probenecid 25 mg per kg given orally simultaneously. A further 55 cases were given amoxycillin trihydrate 50 mg per kg orally and probenecid 25 mg per kg. Of the 104 patients—who attended for follow-up between four and six days after treatment, cultures taken from all sites were negative for *Neisseria gonorrhoeae*. Two girls had positive vaginal cultures (one had rectal culture positive also) at the second examination 10 to 14 days after treatment with penicillin G, and one girl who had been treated with amoxycillin was found at this time to have a pharyngeal infection. Only two patients developed mild hypersensitivity reactions in the form of erythematous macular rashes.

More than 90% of 96 strains of *N. gonorrhoeae* isolated from 78 patients were inhibited by less than 1 mg/ml penicillin G, and 50% were susceptible to 0·04 mg/ml or less. All but two strains were sensitive to amoxycillin.

About 15% of the patients studied on the mainland of the USA were found to have pharyngeal infection, and the rectum was infected in about 50% of girls and 25% of boys with genital gonorrhoea; in three girls the rectal cultures were positive but vaginal cultures negative. None of the Costa Rican patients was found to have pharyngeal or rectal gonorrhoea. Multiple gonococcal infections, presumably due to reinfection, were observed in five girls. The authors conclude that single-dose treatment with penicillin-probenecid or amoxycillin-probenecid is curative.

[Only two boys studied had rectal gonorrhoea, both presumably cured by single-dose treatment. With the known difficulty of treating rectal gonorrhoea in adults, it might be advisable to qualify the statement that single-dose treatment is curative. In view of the recent discovery of β-lactamase producing strains of *N. gonorrhoeae* it would be desirable to see a similar study using a wider range of antibiotics.]

A. McMillan

Penicillinase-producing gonococci in Liverpool

A. PERCIVAL, J. E. CORKILL, O. P. ARYA, J. ROWLANDS, C. D. ALERGANT, E. REES, AND E. H. ANNELS (1976). *Lancet*, **2**, 1379

Gonococci, which had acquired a TEM-type of penicillinase widely distributed among Gram-negative bacilli, appeared in February 1976, and soon accounted for 9% of isolates at a clinic in Liverpool. In 45 patients infected by such gonococci, the frequency of complications did not suggest reduced communicability or invasiveness, and usual forms of treatment with penicillins always failed. Spectinomycin succeeded in 21 (95%) of 22 patients treated, but tetracyclines succeeded in only 13 (68%) of 19. Appropriate laboratory tests for recognising penicillinase-producing gonococci must be used since such gonococci have already been transferred to other parts of the UK. Penicillinase-stable cephalosporins were active *in vitro* and could prove to be the future treatment of choice.

Authors' summary

Infection with penicillinase-producing gonococcus

A. E. WILKINSON, A. D. SETH, AND P. RODIN. (1976). *British Medical Journal*, **2**, 1233

Penicillinase-producing gonococci

(Leading Article) (1976). *British Medical Journal*, **2**, 963

Penicillinase-producing gonococci

(Leading Article) (1976). *Lancet*, **2**, 725

Multiple antibiotic resistance in clinical strains of *N. gonorrhoeae* isolated in South Carolina

J. T. POWELL AND J. H. BOND (1976). *Antimicrobial Agents and Chemotherapy*, **10**, 639

Oral carbenicillin treatment of uncomplicated gonorrhea in men and women

W. C. DUNCAN, D. P. ROBERTS, AND J. M. KNOX (1976). *Journal of the American Venereal Disease Association*, **2**, 31

Non-specific genital infections

Salpingitis and chlamydiae subgroup A

B. HAMARK, J. E. BRORSSON, T. EILARD, AND L. FORSSMAN (1976). *Acta Obstetrica Gynecologica Scandinavica*, **55**, 377

Laporsacopy was performed on 31 patients attending the East Hospital, Gothenburg, in whom a clinical diagnosis of acute pelvic inflammatory disease had been made; in 21 of these patients, this diagnosis was confirmed and specimens were collected from the Fallopian tubes and cervix and cultured for bacteria, *Chlamydia trachomatis*, *Mycoplasma hominis*, and *Ureaplasma urealyticum*.

C. trachomatis was recovered from the cervix in six patients, of whom four showed a fourfold or greater rise in titre of complement-fixing antibodies (CF), using an LGV antigen. In one of these patients, *C. trachomatis* was also recovered from the Fallopian tubes. One additional patient showed high unchanged CF titres but was isolation-negative. *N. gonorrhoeae* was recovered from the cervix in seven, and from the tubes in one, of the 21 patients studied.

The authors suggest that these results imply that *C. trachomatis* may be a cause of acute salpingitis.

J. D. Oriel

Differential response of chlamydial and ureaplasma-associated urethritis to sulphafurazole (sulfisoxazole) and aminocyclitols

W. R. BOWIE, J. F. FLOYD, Y. MILLER, E. R. ALEXANDER, J. HOLMES, AND K. K. HOLMES (1976). *Lancet*, **2**, 1276

Ninety-one men with non-gonococcal urethritis (NGU) were randomly treated with either sulphafurazole (sulfisoxazole), 500 mg orally four times a day for 10 days, or an aminocyclitol (streptomycin or spectinomycin), 2 g intramuscularly with one to three doses at 12 hourly intervals. Initial urethral cultures were positive for *Chlamydia trachomatis* (C) in 36 (40%). *Ureaplasma urealyticum* (U) was isolated from the urethra or urine from 20 (95%) of 21 White men in a first episode of NGU who had negative *Chlamydia* cultures. Sulphafurazole, active against *C. trachomatis* but not *U. urealyticum in vitro*, produced a clinical response

in seven of seven men with C + U − NGU, and five of 19 with C − U + NGU ($P < 0.01$). Aminocyclitols, active against *U. urealyticum* but relatively inactive against *C. trachomatis in vitro*, produced a clinical response in none of six men with C + U − NGU, nine of 11 men with C − U + NGU from whom ureaplasma was eradicated ($P < 0.01$), and none of eight with C − U + NGU from whom ureaplasma was not eradicated. C + U + NGU responded poorly to both antimicrobials alone. These results support the aetiological importance of both *C. trachomatis* and *U. urealyticum* in NGU.

Authors' summary

Biosynthesis of saturated and unsaturated fatty acids by a T-strain mycoplasma (ureaplasma)
N. ROMANO, S. ROTTEM, AND S. RAZIN (1976). *Journal of Bacteriology*, **128**, 170

Lymecycline (Tetralysal) in the management of non-specific urethritis
K. R. BREMNER (1976). *New Zealand Medical Journal*, **84**, 314

Trichomoniasis

May *Trichomonas vaginalis* provoke conjunctivitis?
M. S. NORN, F. LUNDVALL, AND P. PAERREGAARD (1976). *Acta Ophthalmologica*, **54**, 574

In the world literature we found reports of five cases of *Trichomonas vaginalis* in the conjunctiva.

Conjunctival swabs taken from 122 patients with conjunctivitis or keratitis revealed no flagellated micro-organisms on phase contrast microscopy and culture, nor did conjunctival swabs taken from 272 new-born infants, in spite of the fact that 3·7% of their mothers had *Trichomonas* in the vagina.

T. vaginalis is hardly likely to be responsible for conjunctivitis.

Authors' summary

Candidosis

Recurrence of vulvovaginal candidosis during pregnancy: Comparison of miconazole v. nystatin treatment
H. C. C. WALLENBURG AND J. W. WLADIMIROFF (1976). *Obstetrics and Gynaecology*, **48**, 491

Seventy-eight pregnant women with symptomatic culturally-proven yeast infections of the vagina were randomly assigned to one of two treatment schedules. The first group of 37 was treated with 2% miconazole vaginal cream, used once daily for 10 days. The other 41 women were given nystatin pessaries, containing 100 000 units nystatin, one being inserted twice daily for two to three days, and then one daily for four to six days. After treatment, positive cultures were obtained from 18 of the 41 nystatin-treated women, but from only 8 of the 37 miconazole-treated patients, this difference being significant ($P < 0.05$). Sixteen weeks after treatment, 24% of 29 miconazole-treated women who had had negative cultures just after completion of therapy were found to have yeasts again. This was significantly better than the nystatin-treated women, of whom 48% of 23 had positive cultures at this time.

The authors suggest that the lower recurrence rate after treatment with miconazole may be related to a higher initial effectiveness of the drug, or to the simultaneous eradication of anal candidal infection.

(At present, however, it is not known whether 'recurrent' vaginal candidosis is due to the same strain of yeast which caused the initial disorder, or to a different strain. Until we are able to differentiate more accurately between strains of *Candida*, comparisons of different drug regimens in the management of recurrent candidosis must be interpreted cautiously.)

A. McMillan

Three-day therapy of vulvovaginal candidiasis with Econazole—multicentric study comprising 996 cases
J. A. BALMER (1976). *American Journal of Obstetrics and Gynecology*, **126**, 436

Genital herpes

The mechanism of recurrent infection by *Herpesvirus hominis* (Review Article)
S. M. BIERMAN (1976). *Archives of Dermatology*, **112**, 1459

Herpes-simplex-type 2 antibodies and HLA-B12 in cervical cancer
U. D. KOENIG, N. MULLER, AND K. E. SCHNEWEIS (Letter) (1976). *Lancet*, **2**, 857

Virucidal effect of certain chemical contraceptives on type-2 herpesvirus
B. SINGH, B. POSTIC, AND J. C. CUTLER (1976). *American Journal of Obstetrics and Gynecology*, **126**, 422

Other sexually transmitted diseases

Lymphogranuloma venereum. A cause of cervical lymphadenopathy
S. B. THORSTEINSSON, D. M. MUSHER, K-W. MIN, AND F. GYORKEY (1976). *Journal of the American Medical Association*, **235**, 1882

A case is reported of lymphogranuloma venereum (LGV) in a 31-year-old homosexual admitting to fellatio in which cervical lymphadenopathy was a prominent feature. The patient had complained of anorexia, malaise, and recent weight loss. Initial findings were of low grade fever and left anterior cervical lymphadenopathy followed by enlargement of the axillary and supraclavicular glands, with possible retroperitomeal lymphadenopathy suggested by intravenous pyelogram.

Syphilis, brucellosis, infective mononucleosis, toxoplasmosis, fungal infections, and leptospirosis were excluded by appropriate investigations and a cervical lymph node biopsy was made to exclude lymphoma. Histology showed microabscesses with a central accumulation of polymorphonuclear leucocytes surrounded by a zone of histiocytes with occasional giant cells. Ziehl-Nielsen, Gomori silver methenamine, and Giemsa stains showed no infecting micro-organisms. Cultures from the material were negative for aerobic and anaerobic bacteria, fungi, and mycobacteria.

LGV complement-fixation test (LGVCFT) titre on admission was 1:16 and 1:32 two weeks later. A positive Frei

test was obtained. Tetracycline, 2 g a day for four weeks produced a rapid clinical improvement with remission of the lymph node enlargement and a fall in LGVCFT titre to 1:4. (Despite an adequate summary of the course and response to treatment, the diagnosis of LGV is suggestive rather than conclusive. No attempt has been made to isolate *Chlamydia* from biopsy material in this case, although it is possible to do this accurately in LGV.)

M. A. Waugh

Minocycline in the treatment of lymphogranuloma venereum

C. N. SOWMINI, K. N. GOPALAN, AND G. CHANDRASEKHARA RAO (1976). *Journal of the American Venereal Disease Association*, **2**, 19

In a study of 80 cases of lymphogranuloma venereum (LGV), minocycline hydrochloride was found to be an effective drug in the treatment of all stages of LGV, including complicated ones. In late cases adjuvant treatment was used in addition to the antibiotic. Healing time in uncomplicated cases was less than 10 days. In complicated cases, both early and late, healing took about two to three weeks. Reactions to the drug were not significant.

Authors' summary

5-fluorouracil cream in the successful treatment of therapeutically refractory condylomata acuminata of the urinary meatus

G. VON KROGH (1976). *Acta Dermato Venereologica*, **56**, 297

Forty men with a total of 50 sites affected by condylomata acuminata which had proved resistant to other forms of treatment were treated with 5% 5-fluorouracil cream (5-FU). The sites were classified as follows:

Type I, penile mucous membrane (inner surface of prepuce, glans, and distal subpreputial shaft). Type II, penile skin. Type III, urethral meatus. Type IV, anal skin. Type V, anal mucous membrane.

Patients were instructed to wear plastic gloves and to apply the cream twice daily, taking care against accidental contamination of the eyes. A cotton wool swab was to be used when treating urethral meatal warts. Adverse symptoms such as burning were treated by the patient with an application of 3% boric acid followed by antimicrobial ointment or lotion, often with corticosteroids incorporated, and the frequency of treatment was reduced to once daily.

Thirteen of 14 patients with meatal warts (Type III) showed complete regression after an average of three weeks' treatment. Patients with anal mucosal (Type V) and penile mucosal (Type I) were often unable to tolerate the side effects produced by the 5-FU cream. Treatment of warts at cutaneous sites did not give good results.

The exhibition of 5-FU cream in the treatment of condylomata should be confined to urethral meatal warts, where it seems to be effective.

J. D. H. Mahony

The absence of human papilloma viral DNA sequences in condylomata acuminata

R. DELAP, A. FRIEDMAN-KIEN, AND M. G. RUSH (1976). *Virology*, **74**, 268

The virological findings that have been obtained in studies of condylomata acuminata are discussed. Papilloma virus of the type associated with the common skin wart has often been found in association with genital warts but the number of particles is small and they differ antigenically from common wart virus.

The present study examined DNA–DNA reassociation kinetics as a means of establishing whether or not a relationship existed between human papilloma virus DNA sequences and DNA present in condylomata acuminata. Using human viral papilloma DNA as a positive control the technique revealed the presence of 0·7 viral genomes per cell in common skin warts. However, although the technique could recognise as little as 0·2 viral genomes per diploid cell, no reassociation at all could be found between condylomata DNA and DNA from human viral papillomas.

Other studies by electron microscopy surprisingly revealed that DNA extracts from condylomata contained a wide size range of circular DNA molecules.

Taking these two separate findings together the authors speculate that: (1) Condylomata are not caused by a papilloma or papova virus. (2) Condylomata are caused by such a virus but that its presence is obscured by the presence of small polydisperse circular DNA molecules.

June Almeida

Viral 'tumorigenesis' in man: cell markers in condylomata acuminata

J. M. FRIEDMAN AND P. J. FIALKOW (1976). *International Journal of Cancer*, **17**, 57

Determination of the glucose 6-phosphate dehydrogenase (G-6-PD) phenotype of a neoplasm occurring in a heterozygous female can be used to trace the cellular origin of the tumour. This technique was performed on 834 individual verrucous subunits from four condylomata acuminata arising in two patients heterozygous for a B and an A gene at the G-6-PD locus. All four specimens contained both A and B types of G-6-PD. Furthermore, even single verrucous subunits from each specimen occasionally contained both enzyme types. These data indicate that condylomata acuminata have a multicellular origin. The initial number of cells which, after viral infection, developed into a condyloma acuminatum was estimated to be about 4400 cells, on the basis of a statistical analysis of the data in one case.

Authors' summary

The crab louse—Review of physiology and study of anatomy as seen by the scanning electron microscope

S. J. KRAUS AND L. H. GLASSMAN (1976). *Journal of the American Venereal Disease Association*, **2**, 12

Miscellaneous

Protocol management of male genitourinary infections

A. RHODES, J. MCCUE, A. L. KOMAROFF, AND T. M. PASS (1976). *Journal of the American Venereal Disease Association*, **2**, 23

Familial allergic seminal vulvovaginitis

T. W. CHANG (1976). *American Journal of Obstetrics and Gynecology*, **126**, 442

Notice

International Symposium on the Sexually Transmitted Diseases

This symposium will take place from 31 October to 2 November 1977 at the Hotel Meridien in Montreal. All interested venereologists and dermato-venereologists are welcome.

Inquiries should be made either to Dr J. P. Brault or Dr R. Morissett at 1650 Lincoln, Suite 1806, Montreal, Quebec H3H 1H1, Canada. Telephone (514) 935 2243. Telex 055 60138.